

Claims

1. A method for deformation of a material body (1), in which a stamping member (2) with a mass m is conveyed towards and hits the material body (1) with such a velocity that at least one rebound motion of the stamping member (2) is generated, while a permanent deformation of the body is generated, **characterized** in that the rebound motion is counteracted, through which at least one additional impact of the stamping member (2) against the material body (1) is generated within a period, during which kinetic energy in the material body (1) generates an additional deformation in the body.

2. A method according to claim 1, **characterized** in that during the period, within which kinetic energy in the material body (1) generates the additional deformation in the body, a reciprocating wave appears through at least a part of the body, the wave motion having the kinetic energy generating the additional deformation.

3. A method according to claim 1 or 2, **characterized** in that the rebound motion is counteracted in that a force F is allowed to act on the stamping member (2) in the direction towards the material body (1).

4. A method according to claim 3, **characterized** in that the direction in which the stamping member (2) hits the material body (1) is such that the force F comprises at least a part of the gravity force ($m \cdot g$) acting on the stamping member (2).

5. A method according to claim 3 or 4, **characterized** in that the force F comprises a force F_1 , which is applied to the stamping member (2) in the direction towards the material body (1).

6. A method according to any of claims 1-5, **characterized** in that a series of impacts is applied by means of the stamping member (2) against the material body (1) within said period.

5 7. A method according to claim 6, **characterized** in that the series of bounces is achieved in that a corresponding series of rebounds of the stamping member (2) is counteracted.

10 8. A method according to claim 6 or 7, **characterized** in that the impulse, with which the stamping member (2) hits the material body (1) decreases with each impact in said series.

15 9. A method according to any of claims 6-8, **characterized** in that after a first series of impact at least one additional series of impacts is applied to the material body (1).

20 10. A method according to any of claims 1-9, **characterized** in that the stamping member (2) is caused to accelerate towards the material body (1) under the influence of the gravity force.

11. A method according to any of claims 1-10, **characterized** in that the material body (1) is a solid body comprising a metal material.

25 12. A method according to any of claims 1-11, **characterized** in that said deformation comprises a reshaping of the body.

30 13. A method according to claim 11 or 12, **characterized** in that the additional deformation comprises a gradual activation of sliding planes in the material body (1).

35 14. A method according to any of claims 1-9, **characterized** in that the material body (1) comprises a powder, provided in a mould.

15. A method according to claim 14, **characterized** in that plastic deformation of the powder body comprises a compacting thereof.

5 16. A method according to claim 14 or 15, **characterized** in that a reciprocating wave appears in the body during said period, which has a kinetic energy generating a mutual displacement of powder grains, such that a compacting is achieved.

10 17. A device for deformation of a material body (1), comprising a stamping member (2) arranged to be conveyed towards and hit a material body (1) with such a velocity that a rebound motion of the stamping member (2) is generated, while a deformation of the material body (1) is generated, **characterized** in
15 that it comprises means (3) for counteracting the rebound and for generating at least one additional impact of the stamping member (2) against the material body (1) within a period, during which kinetic energy in the material body (1) generates an additional deformation in the body.

20 18. A device according to claim 17, **characterized** in that during the period, within which kinetic energy in the material body (1) generates an additional deformation of the body, a reciprocating wave appears through at least a part of the material body
25 (1), the wave motion having the kinetic energy which gradually generates the additional deformation.

19. A device according to claim 17 or 18, **characterized** in that the path of motion of the stamping member (2) towards the
30 material body (1) is such that the body is accelerated under the influence of the gravity force acting on it and the rebound is counteracted by the gravity force ($m \cdot g$).

20. A device according to any of claims 17-19, **characterized**
35 in that it comprises means (3) for application of a force F_1 to

the stamping member (2), which force acts in the direction towards the material body (1) and counteracts the rebound.

- 5 21. A device according to any of claims 17-20, ***characterized*** in that it is arranged to perform a series of impacts by means of the stamping member (2) against the material body (1) within said period.
- 10 22. A device according to claim 21, ***characterized*** in that the impulse, with which the stamping member (2) hits the material body (1), decreases with each impact within said series.

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